

Project Summary:
***Dissemination of Institutional Fuel Efficient
Biomass Stoves in South Africa***

Developed by E+Carbon and Hewmatt Energy South Africa
according to the Gold Standard's
**“Indicative Programme, Baseline, and Monitoring
Methodology for Improved Cook-Stoves and
Kitchen Regimes”**



Hewmatt Energy
South Africa

Overview:

Most schools and other institutions in rural South Africa use fuelwood as their predominant fuel source for cooking, resulting in poor quality service and unsafe conditions. The practice also threatens local forest reserves and releases large quantities of greenhouse gases. In an attempt to improve this scenario, Hewmatt Energy South Africa and E+Carbon have teamed up to leverage carbon finance to disseminate large numbers of efficient biomass stoves to rural schools and other institutions throughout South Africa.

Background:

Non-renewable consumption of biomass for cooking in South Africa leads to deforestation and indoor air pollution, which has significant public health and environmental implications. Although most studies suggest that, on a national scale, annual production of fuelwood in South Africa is sufficient to meet annual demand from cooking and other uses, local shortages are common due to over harvesting and changes in land use¹. The National Schools Nutrition Program (NSNP) is required to provide approximately 7 million students with daily cooked meals in South Africa. There are currently 18,039 schools participating in the NSNP in South Africa, of which 14,108 are cooking their meals on traditional three stone stoves. These stoves are inefficient, unhealthy and often unsafe. Moreover, wood scarcity is pervasive and threatens the effectiveness of the NSNP program².

Project Details:

The project aims to reduce greenhouse gas emissions, curb deforestation and improve air quality through the manufacture and dissemination of institutional fuel efficient biomass stoves to schools and other institutions throughout South Africa.

The project will start and grow Hewmatt Energy South Africa, a startup company that will manufacture, assemble, market and retail efficient institutional biomass stoves to schools and other institutions throughout South Africa. The proposed stoves are of the “rocket” type and have a capacity of 100 liters. Each stove saves over 40 tons of fuelwood per year.

Hewmatt's primary target market is rural and peri-urban primary schools participating in the NSNP. Hewmatt's secondary target market includes rural and peri-urban catering institutions within South Africa, as well as rural clinics, hotels, restaurants, lodges, rural churches and catering companies who work in un-electrified areas, often catering for weddings or funerals. Activity will start in the provinces of Mpumalanga, Limpopo, Kwa Zulu Natal, and the North West, all of which are within easy reach of Hewmatt's home base in Gauteng. Once the business is more established Hewmatt will expand into the other remaining South African markets, including Eastern and Northern Cape.

¹ Damm, Dr Oliver and Ralph Triebel. *A Synthesis Report on Biomass Energy Consumption and Availability in South Africa*. ProBec/GTZ, February, 2008.

² Mushamba, Paul M.J. *Institutional Catering in South Africa: Analysis of the Market Potential for Energy Efficiency Improvements*. GTZ/ProBec, May, 2008.

Stoves consist of a steel cylinder that accommodates a fitted pot on top. The cylinder is filled with insulating ceramic and brick that forms a combustion chamber, creating a more efficient combustion process. Rocket stoves are among the more common efficient biomass stove designs. Similar designs have been used, mostly on a pilot basis, throughout Africa and Asia for many years. However, this project is an attempt to take the technology to scale, which is a new approach for South Africa.

The picture below shows pilot models of the stoves that will be manufactured and sold:



Gold Standard Sustainability Analysis:

This project is being developed according to the Gold Standard, which is a standardized protocol for developing carbon offsets that is considered the highest benchmark for quality assurance. To ensure that Gold Standard projects promote sustainable development, the protocol requires that project developers conduct a sustainability analysis that assesses the project in terms of environmental and sustainable development impact. The following is a summary of Gold Standard's relevant indicators:

1. **Air quality** - School staff and children will be exposed to fewer hazardous air pollutants through reduced emissions of carbon monoxide and fine particulate matter. Air pollution from cooking with solid fuel is a key risk factor for childhood acute lower respiratory infections (for example, pneumonia) as well as many other respiratory, cardiovascular, and ocular diseases. The World Health Organization estimates that approximately 1,000 deaths can be attributed to cooking with solid fuels in South Africa every year. Moreover, cooking with these dangerous fuels results in 20,800 disability-adjusted life years (DALYs) per year³. DALYs combine the years of life lost due to disability with the years of life lost due to death, and allows us to more accurately quantify the adverse effect on public health.
2. **Biodiversity** - Biodiversity will be improved through the stove program by reducing pressure on local forest reserves.

³ World Health Organization. Indoor Air Pollution: National Burden of Disease Estimates. WHO, 2007.

3. Employment - The improved stoves give rise to employment opportunities for Hewmatt and its affiliates who are manufacturing, distributing, retailing, and maintaining the stoves.
4. Livelihood for the poor - School and other institutions' finances will be improved since the efficient stoves reduce fuel costs, which are a burden on school budgets. Money could otherwise be used on education related expenses that could yield significant benefits. Schools can expect to save up to 85% on fuel costs with Hewmatt's rocket stove.
5. Human and institutional capacity - Human capacity is raised through the business development component of the project.
6. Technological self-reliance: The introduction of locally manufactured technology with optimized energy efficiency helps to build technological self-reliance.

Questions or comments

An in person stakeholder consultation, where E+Carbon and Hewmatt Energy will outline the project in detail, will be held on Thursday, February 5, 2008 at 2 pm at the Sihluziwe Primary School 1105 Section F Enkangala, Bronkhospruit. We invite you to attend this event in person or comment virtually on the project design via email. Kindly send any comments to Cathy Diam, Carbon Finance Officer at catherine.diam@eandco.net and Erik Wurster, Manager, Carbon Finance at erik.wurster@eandco.net.